Please replace the paragraph beginning at page 7, line 19 with the following rewritten paragraph:

--A method for protecting an occupant in an impact comprises the steps of determining that a crash involving the vehicle is about to occur, and moving a cushioning arrangement into contact with the occupant upon a determination that a crash involving the vehicle is about to occur. The cushioning arrangement comprises a frame coupled to the vehicle and a fluid-containing bag attached directly or indirectly to the frame. The bag is structured and arranged to allow movement of the fluid within the bag to thereby alter the shape of the bag and enable the bag to conform to the occupant. The cushioning arrangement may be as in any of the embodiments described above. The step of moving the cushioning arrangement into contact with the occupant may comprise the steps of moving the cushioning arrangement toward the occupant, detecting when the cushioning arrangement comes into contact with the occupant and then ceasing movement of the cushioning arrangement. The step of detecting when the cushioning arrangement comes into contact with the occupant may comprise the step of arranging a contact switch in connection with the cushioning arrangement.--

a2

Please replace the paragraph beginning at page 10, line 14 with the following rewritten paragraph:

a3 --FIG. 8A is a perspective view with portions cut away and removed of the headrest of FIG. 8;--

Please replace the paragraph beginning at page 12, line 24 and bridging pages 12 and 13 with the following rewritten paragraph:

--The wire 220 shown in FIG. 2 leads to the electronic control module 250 which is also shown in FIG. 3. FIG. 3 is a perspective view of a headrest actuation mechanism, mounted in a vehicle seat 310, and transducers 320,321 plus a head contact sensor 350. Transducer 320 may be an ultrasonic transmitter and transducer 321 may be an ultrasonic receiver. The transducers 320,321 may be based on any type of propagating phenomenon such as electromagnetics (for example capacitive systems), and are not limited to use with ultrasonics. The seat 310 and headrest 111 are shown in phantom. Vertical motion of the headrest 111 is accomplished when a signal is sent from control module 250 to servomotor 360 through wire 331. Servomotor 360 rotates lead screw 362 which mates with a threaded hole in elongate member 364 causing it to move up or down depending on the direction of rotation of the lead screw 362. Headrest support rods 365 and 366 are attached to member 364 and cause the headrest 111 to translate up or down with member 364. In this manner, the vertical position of the headrest 111 can be controlled as depicted by arrow A-A.--

a4

Please replace the paragraph beginning at page 13, line 6 with the following rewritten paragraph:

--Wire 332 leads from the control module 250 to servomotor 370 which rotates lead screw 372. Lead screw 372 mates with a threaded hole in elongate, substantially cylindrical shaft 373 which is attached to supporting structures within the seat shown in phantom. The rotation of lead screw 372 rotates servo motor support 361 which in turn rotates headrest support rods 365 and 366 in slots 368 and 369 in the seat 310. In this manner, the headrest 111 is caused to move in the fore and aft direction as depicted by arrow B-B. Naturally there are other designs which accomplish the same effect of moving the headrest to where it is proximate to the occupant's head.--

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Please replace the paragraph beginning at page 13, line 13 with the following rewritten paragraph:

--The operation of the system is as follows. When an occupant is seated on a seat containing the headrest and control system described above, the transducer 320 emits ultrasonic energy which reflects off of the back of the head of the occupant and is received by transducer 321. An electronic circuit containing a microprocessor determines the distance from the head of the occupant based on the time period between the transmission and reception of an ultrasonic pulse. The headrest 111 moves up and/or down until it finds the vertical position at which it is closest to the head of the occupant. The headrest remains at that position. Based on the time delay between transmission and reception of an ultrasonic pulse, the system can also determine the longitudinal distance from the headrest to the occupant's head. Since the head may not be located precisely in line with the ultrasonic sensors, or the occupant may be wearing a hat, coat with a high collar, or may have a large hairdo, there may be some error in the longitudinal measurement. This problem is solved in an accident through the use of a contact switch 350 on the surface of the headrest. When the headrest contacts a hard object, such as the rear of an occupant's head, the contact switch 350 closes and the motion of the headrest stops.--

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Please replace the paragraph beginning at page 14, line 14 with the following rewritten paragraph:

--The seat also contains two switch assemblies 380 and 382 for controlling the position of the seat 310 and headrest 111. The headrest control switches 382 permit the occupant to adjust the position of the headrest in the event that the calculated position is uncomfortably close to or far from the occupant's head. A woman with a large hairdo might find that the headrest automatically adjusts so as to contact her hairdo. This might be annoying to the woman who could then position the headrest further from her head. For those vehicles which have a seat memory system for associating the seat position with a particular occupant, the position of the headrest relative to the occupant's head can also be recorded. Later when the occupant enters the vehicle, and the seat automatically adjusts to the occupant's recorded in memory

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a7 ent

preference, the headrest will similarly automatically adjust. In U.S. Patent No. 5,822,437, incorporated by reference herein, a method of passively recognizing a particular occupant is disclosed.--

Please replace the paragraph beginning at page 14, line 25 with the following rewritten paragraph:

a8

--Thus, an automatic adjustment results which moves the headrest to each specific occupant's desired and memorized headrest position. The identification of the specific individual occupant for which memory look-up or the like would occur can be by height sensors, weight sensors (for example placed in a seat), or by pattern recognition means, or a combination of these and other means, as disclosed in the above-referenced patent applications and granted patents.--

Please replace the paragraph beginning at page 15, line 1 with the following rewritten paragraph:

a9

--One advantage of this system is that it moves the headrest toward the occupant's head until it senses a resistance characteristic of the occupant's head. Thus, the system will not be fooled by a high coat collar 501 or hat 502, as illustrated in FIG. 5, or other article of clothing or by a large hairdo 401 as illustrated in FIG. 4. The headrest continues to be moved until it contacts something relatively rigid as determined by the contact switch 350.--

Please replace the paragraph beginning at page 15, line 16 and bridging pages 15 and 16 with the following rewritten paragraph:

a10

--An improvement to the system described above results when pattern recognition technology is added. FIG. 6 is view similar to FIG. 3 showing an alternate design of a head sensor using three transducers 320, 321 and 322 for use with a pattern recognition system. Transducer 320 performs both as a transmitter and receiver while transducers 321,322 perform only as receivers. Transducers 321,322 are placed on either side of transducer 320 and above the same. Using this system and an artificial neural network, or other pattern recognition system, as part of the electronic control module 250, an accurate determination of the location of an occupant's head can, in most cases, be accomplished even when the occupant has a large hairdo or hat. In this case, the system would be trained for a wide variety of different cases prior to installation into the vehicle. This training is accomplished by placing a large variety of different occupants onto the driver's seat in a variety of different positions and recording digitized data from transducers 320, 321 and 322 along with data representing the actual location of the occupant's head. The different occupants include examples of large and small people, men and women, with many hair, hat, and clothing styles. Since each of these occupants is placed at a variety of different positions on the seat,

a10 cont

the total data set, called the "training set", will consist of at least one thousand, and typically more than 100,000, cases. This training set is then used to train the neural network, or other similar trainable pattern recognition technology, so that the resulting network can locate the occupant's head in the presence of the types of obstructions discussed above whatever an occupant occupies the driver's seat.--

Please replace the paragraph beginning at page 16, line 14 with the following rewritten paragraph:

a11

--The process of locating the head of an occupant can be programmed to begin when an event occurs such as the closing of a vehicle door or the shifting of the transmission out of the PARK position. The ultrasonic transmitting/receiving transducer 320, for example, transmits a train of ultrasonic waves toward the head of the occupant. Waves reflected from the occupant's head are received by transducers 320, 321 and 322. An electronic circuit containing an analog to digital converter converts the received analog signal to a digital signal which is fed into the input nodes numbered 1, 2, 3,..... n, shown on Fig. 7. The neural network algorithm compares the pattern of values on nodes 1 through N with patterns for which it has been trained, as discussed above. Each of the input nodes is connected to each of the second layer nodes, called the hidden layer, either electrically as in the case of a neural computer or through mathematical functions containing multiplying coefficients called weights, described in more detail below. The weights are determined during the training phase while creating the neural network as described in detail in the above text references. At each hidden layer node a summation occurs of the values from each of the input layer nodes, which have been operated on by functions containing the weights, to create a node value. Although an example using ultrasound has been described, the substitution of other sensors such as optical, radar or capacitors will now be obvious to those skilled in the art.--

Please replace the paragraph beginning at page 21, line 8 with the following rewritten paragraph:

a12

--In FIG. 8A, the headrest is constructed of a support or frame 805 which is attached to rods 812 and extends along the sides and across the back of the headrest. Support 805 may be made of a somewhat rigid material. This support 805 helps control the motion of a pre-inflated bag 815 as it deforms under the force from the head of the occupant to where it contacts and provides support to the occupant's neck. Relatively low density open cell foam 840 surrounds the support 805 giving shape to the remainder of the headrest. As shown in FIG. 8A, the open call foam 840 can also have channels or openings 842 extending in a direction generally from a top of the headrest 800 to a bottom of the headrest 800, although such channels are not required. The direction of the channels or openings 842 facilitates the desired movement of the fluid in the bag 815 and constrains the fluid flow upon impact of the occupant's head against the

headrest 800, i.e., a generally vertical movement in the case of the illustrated headrest 800. The open call foam 840 is covered by a thin membrane, possibly made from plastic, or the bag 815 (also referred to as an airbag herein which is appropriate when the fluid in the bag 815 is air-although the fluid within bag 815 may be other than air), and by a decorative cover 810 made of any suitable, acceptable material. The bag 815 is sealed surrounding the support 805 and plastic foam 840 such that any flow of fluid such as air into or out of the bag 815 is through a hole in the bag 815 adjacent to a vent hole 844 in the supporting structure, i.e., the cover 810. Elastic stretch seams 812 are placed in the sides, bottom and/or across the front of the headrest cover to permit the headrest surface to deform to the contour of, and to properly support, the occupant's head and neck. A contact switch 850 is placed just inside cover 810 and functions as described above.--

a12 cont

Please replace the paragraph beginning at page 22, line 1 with the following rewritten paragraph:

--FIG. 9A and FIG. 9B illustrate the operation of the headrest 800. In anticipation of a rear impact (or any other type of impact), as determined by the proximity sensors described above or any other anticipatory crash sensor system, headrest 800 is moved from its position as shown in FIG. 9A to its position as shown in FIG. 9B. This movement is enabled by control of the displacement means, such as those described above with reference to FIG. 3, as effected through the control module 250. The forward movement of the headrest 800 should continue until the headrest 800 contacts or impacts with the occupant's head as determined by a contact switch 850. When headrest 800 contacts or impacts the head 910 of the occupant 900, it exerts sufficient pressure against head 910 to cause air (the fluid in the bag 815 for the purposes of this explanation) to flow from the upper portion 920 to the lower portion 930 of headrest 800, which causes this lower portion to expand as the upper portion contracts. This initial flow of air takes place as the foam 840 compresses under the force of contact between the head and upper portion 920 of headrest 800. The initial shape of headrest 800 is created by the shape of the foam 840; however once the occupants head 910 begins to exert pressure on the upper portion 920 the air is compressed and begins to flow to the lower portion 930 causing it to expand until it contacts the neck 915 of the occupant 900. (If the occupant's head were to exert pressure on the lower portion 930 or once the pressure on the upper portion 920 were removed, air would flow from the lower portion 930 to the upper portion 920.) In this manner, by the flow of air, the pressure is equalized on the head and neck of the occupant 900 thereby preventing the whiplash type motions described in the Dellanno patents, as well as numerous technical papers on the subject. The headrest of this invention acts very much like a pre-inflated airbag providing force where force is needed to counteract the accelerations of the occupant. It accomplishes this force

a13